

BEST AVAILABLE COPY**REMARKS**

This application is rejected under 35 U.S.C. § 112, first paragraph, for the reasons noted in the official action. The enablement rejection is acknowledged and respectfully traversed in view of the following remarks. The Examiner has indicated that it is unclear from the disclosure how the Applicant proposes to determine "a predetermined value of power delivered by the transmission to the power take off". In reply, the Applicant asserts that frankly there is no proposal, nor any need in the present invention to determine any particular "predetermined" value. In fact, no specific value determination is necessary to the function or structure or even method of the presently claimed invention. The determination of any predetermined value can be almost any value, that is any value between 0% and 100% of the power developed in the transmission.

A "predetermined" value is inherently, a preselected value. A person of ordinary skill in the art would obviously know that the only values available to be selected are between 0 and 100% of the developed transmission power. Where no specific value is necessary, the artisan is free to choose any value they desire, they do not even have to experiment, they can even guess. To be clear, whatever "value of power delivered by the transmission to the power take off" that is selected as a "predetermined" value, is not important to the functioning of the presently claimed invention and thus, any value could be selected. Therefore, understanding that the test for enablement is whether a person of ordinary skill in the art could make and use the invention without *undue experimentation*, it is the Applicant's position that because any and all values in the range of 0%-100% of power could be selected, that such determination takes little to no experimentation, much less undue experimentation as required to support an enablement rejection.

By way of further explanation, from a structural and functional point of view, a power take off, or PTO, is well known in the art. Manual operator control systems, as well as electronic control systems for apportioning engine power transferred to the transmission to different transmission outputs are also well known in the art. For example as discussed in the

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Background of the Invention in U.S. Patent No. 4,015,482, it is well known in the art to use power from an internal combustion engine for "...combined propelling-excavating operation, wherein part of the engine power is used for propelling the vehicle and the remainder for actuating the bucket of like implement assembly of the vehicle" (column 1, lines 25-28). The nature of how a specific power splitting ratio is determined is correspondingly well known and can be done in any number of ways, for example, as again explained in the Background of the '482 patent, "The powertrains of some excavating-loading vehicles incorporate a hydraulic torque converter the torque absorption characteristic of which can be varied, either continuously or stepwise, by the vehicle operator in accordance with the various operations of the vehicle. . .".

Additionally, the Applicant also notes that it is well known in the art to use an electrohydraulic control device generally having an internal microprocessor which can be used to control the vehicle transmission in accordance with stored values and data tables as well as actual measured signals received, for instance, from the above described manual inputs by the vehicle operator. As explained in Fonkalsrud et al. '581 cited by the Examiner in this case, "The electronic control module contains sufficient electronic circuitry to convert input signals from a plurality of sensors and switches to form readable by the microprocessor, and circuitry to generate sufficient power to drive a plurality of solenoids for actuating the transmission 114".

Thus, understanding (1) that any desired value can be selected, or "predetermined" and stored in an electrohydraulic transmission control, and that (2) an electronic control of the transmission is also well known to be based on measured signals and stored values, it follows, and is accordingly well known, that an electrohydraulic transmission controller can also be designed or programmed with any "predetermined" or theoretical values for purposes of comparison with actual measured values to more efficiently, economically and safely operate the vehicle powertrain.

Moving beyond that which is known, the novelty of the present Application lies in the type of compared values, i.e., the selected or predetermined PTO power values (whatever they

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are selected to be) and the measured or "actual" PTO power value and the corresponding method of comparing and operating the transmission based on the comparison. For example, in the present application a "predetermined" value of the power delivered to the PTO is used for comparison purposes with the "actual" PTO power value. This "predetermined" value of power can theoretically be any value between 0% and 100% of the total generated transmission power. By way of example only, in the present invention when the power split to the PTO exceeds for example 70% of the total transmission power, the pressure of the power shift clutch engaged for the forward or reverse gear is reduced to a residual level allowing slipping of the power shift clutch, and thus substantially eliminating the necessity to have slippage in the impeller clutch in the torque converter. The benefits of the claimed invention are that the torque converter does not heat up and require enhanced cooling systems. In any event, whatever this predetermined value of the total transmission power is determined to be, and how it is determined, and stored in the controller of a conventional transmission, can be readily evaluated and accomplished by those of skill in the art without undue experimentation.

Although the term "comparison" as discussed above and now recited in new method claim 8 discussed in further detail below, is not specifically recited in the application, a person of ordinary skill in the art would certainly find it clearly inherent if not express that both paragraph 011 and 017 support such a step where each of these paragraphs state in part, "[w]hen a predetermined value of the power delivered by the transmission to the power take off is exceeded. . .". Such a determination can in fact only be made by a comparison of the predetermined value with that of a measured PTO value.

The Examiner also indicates that the specification does not set forth *how* Applicant proposes to use the determination that the value of power has exceeded a predetermined value to reduce power shift clutch pressure and/or change transmission ratio and/or reduce brake pressure. As best the Applicant understands this rejection, it is described above and at least at paragraph [011] of the specification that the Applicant's invention uses the noted comparison or trigger point where the predetermined value is exceeded to reduce pressure in the power

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shift clutch so that it is in a slipping condition. In other words, this comparison of an actual value versus the predetermined value, is *how*, such a determination, dependent on the predetermined value, is used. If the Examiner's argument is that there is no physical or structural description of how a transmission control decreases the pressure in a transmission clutch, then the Applicant asserts that the structural and functional aspects of reducing the pressure in a power shift clutch are well known in the art, as explained again by Fonkalsrud et al. '581, "The electronic control module contains sufficient electronic circuitry to convert input signals from a plurality of sensors and switches to form readable by the microprocessor, and circuitry to generate sufficient power to drive a plurality of solenoids for actuating the transmission 114"

Ideally, it is not necessary to discuss all background aspects of the invention in the disclosure. The question with regards to enablement is whether a person of skill in the art can make and use the invention without undue experimentation. As noted by the MPEP 2164.01, it is preferable to leave such well known disclosure out. "A patent need not teach, and preferably omits, what is well known in the art." *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Therefore, as the basic general structural and comparative data aspects of achieving the presently claimed invention are well known in the art, the Applicant believes that the original description and specification provide more than sufficient support and enablement for the presently claimed invention and any further description other than the above remarks in this regard would be superfluous.

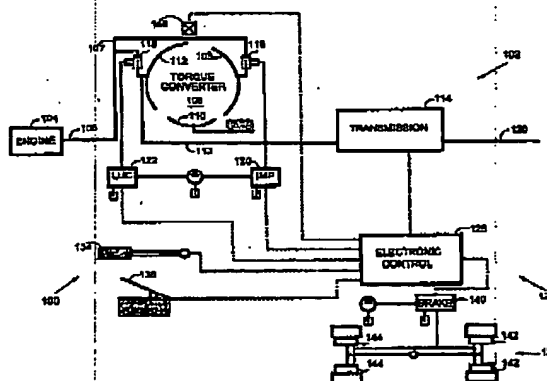
Next, claims 4, 5 and 7 are also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The subject matter of the rejected claims is accordingly rewritten as new claims 8-10 in more conventional U.S. method claim format as well as claims 11-13 in apparatus format. The presently pending claims are now

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believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections.

Claims 4-7, rewritten as new claims 8-10 and 11-13, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fonkalsrud et al. '581 in view of Lee et al. '240. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks and the above rewritten claims.

As the Examiner is aware, in order to properly support a combination of references under 35 U.S.C. § 103(a), the applied references must provide some disclosure, teaching or suggestion therein to one skilled in the art that the references be combined in order to achieve the presently claimed invention. The Applicant notes that Fonkalsrud '581 relates specifically to the electrohydraulic control device for a drive train of a vehicle including an engine 104, a transmission 114, a torque converter 106 and a impeller clutch 116 as recited in lines 1-3 of the Abstract of the Disclosure and shown in FIG. 1 below. In fact, the '581 reference is specifically drawn to control of the impeller clutch 116 located between the engine 104 and the torque converter 106 for controllably coupling the rotating housing to the impeller element in the torque converter as shown in FIG. 1 of Fonkalsrud '581.



Completely contrary to the electrohydraulic control of the torque converter in the Fonkalsrud et al. '581 reference, Lee '240 specifically relates to a hydrostatic transmission *without* a hydrodynamic torque converter. In particular, a review of Lee '240 reference fails to

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disclose any specific disclosure or suggestion that this apparatus or method could be utilized in conjunction with a hydrodynamic torque converter as in Fonkalsrud et al. '581. Secondly, although arguably the excavator or similar earth moving machine disclosed in Lee '240 is brought to a stopped condition and the transmission is shifted into the first gear, a review of the reference fails to support the Examiner's contention that the gear shifting is load dependent. It is the Applicant's contention that this shift into the first gear is independent of the load on the vehicle, and dependent only on the stationary condition of the vehicle contrary to the Examiner's allegation on page 4 of the official action.

Be that as it may, the Applicant can find no teaching, disclosure or suggestion in either of these references that would cause one of ordinary skill in the art to look to the other in order to satisfy any condition, much less achieve the presently claimed solution to vehicle control and torque converter overheating as in the present invention. In particular, because Fonkalsrud et al. '581 is specifically focused on the operation and control of the impeller to a hydrodynamic torque converter wherein on the contrary Lee '240 not only omits such a control, but the entire hydrodynamic torque converter, the Applicant does not believe that there is any disclosure, teaching or suggestion which would lead one of skill in the art to combine these references as suggested by the Examiner.

Even if these references could be combined as suggested by the Examiner, and the Applicant adamantly refutes any such assertion, a combination would still fail to disclose each and every step of the presently claimed invention as recited in the new method claims 8-10. For example, new independent claim 8 specifically recites the step of "comparing the value of the transmission power supplied to the power take off with a predetermined value of power delivered by the transmission to the power take off". A review of both applied references both alone, and in combination, reveals nothing in regards to such a step or feature, in fact noting that because Fonkalsrud et al. '581 is specifically focused on reconfiguring and modifying the impeller clutch pressure to the hydrodynamic clutch, this is a distinctly different method and

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operating principle than that of comparing the power take off value with predetermined value as in the present invention or the hydrostatic transmission of Lee '240.

Further, claim 8 recites the step of "...reducing the pressure of the power shift clutch for one of the forward and reverse gears to a residual level when the value of the transmission power supplied to the power take off exceeds the predetermined value of power. . .". As noted above and distinctly recited in the claim the presently claimed invention does not affect the hydrodynamic torque converter, but in fact directly controls, i.e., reduces the pressure, of the power shift clutch in the transmission for the forward and reverse gear. In this manner, the input to the torque converter is maintained and the increased slippage does not happen in the torque converter as noted in the Applicant's specification at paragraph [011] "As essential advantages of the inventive control of the drive train there result when moving full input power of the engine to the torque converter. . .". A thorough review of both references both alone and in combination fails to disclose, teach or suggest in any manner the recited specified operation of the powershift clutch in the transmission.

This important feature of the present invention is also now clearly set forth in the rewritten method and apparatus claims along with a still further step of the present invention not disclosed, taught or suggested by the applied references either alone or in combination, claim 8 also recites the step of "changing the ratio of the transmission when the predetermined value of the power delivered by the transmission to the power take off is exceeded, so that the ratio of the transmission changes in a manner such that an input force to the torque converter of the wheel loader is maintained. While it may be arguable that Lee '240 shifts the transmission to a first gear when the vehicle is stopped, this is completely independent of the load on the PTO and the function of the torque converter as in the present invention.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

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In view of the above new claims 8-13 and remarks, it is respectfully submitted that all of the raised §112 and §103 obviousness rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Fonkalsrud et al. '581 and/or Lee '240 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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